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ABSTRACT

INTEGRATION OF TOTAL QUALITY MANAGEMENT INTO SENIOR SERVICE SCHOOLS' CURRICULUM

Total Quality Management is a philosophy growing in recognition and respect throughout the private and public sector. The Department of Defense recognizes Total Quality Management as a proven philosophy that will improve mission accomplishment. This research paper will outline what Total Quality Management is, why senior service colleges should include Total Quality Management in their curriculum, pitfalls of Total Quality Management, what civilian education institutions are teaching and what Total Quality Management subject areas senior service colleges should teach.

Total Quality Management is a proven philosophy that will help the military build in quality as the services build down in size. Leading civilian institutions have graduate and doctorate level degree programs in Total Quality Management.

The senior service colleges should teach a core course that highlights the basic theory, implementation strategies and sustainment. Senior service colleges should also offer electives that teach process management, problem solving and group dynamics.

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Integration of Total Quality Management Into Senior Service Schools' Curriculum

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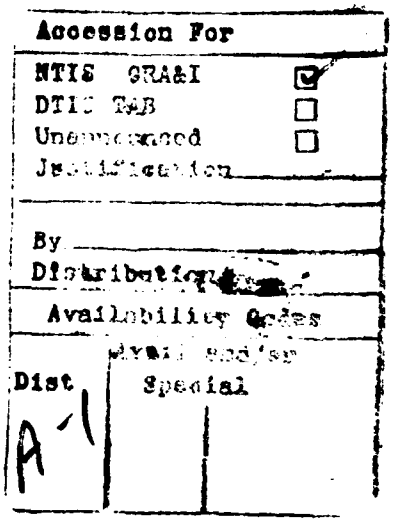

INTEGRATION OF TOTAL QUALITY MANAGEMENT

INTO SENIOR SERVICE SCHOOLS' CURRICULUM

Total Quality Management (TQM) is a philosophy growing in recognition and respect throughout the private and public sector. The Department of Defense (DOD) recognizes TQM as a proven philosophy that will improve mission accomplishment. This research paper will outline what TQM is, why Senior Service Colleges (SSCs) should include TQM in their curriculum, why it sometimes does not seem to work, what civilian education institutions are teaching and what TQM subject areas SSCs should teach.

> *" ... Quality improvement principles apply to small companies as well as large corporations, to service industries as well as manufacturing, and the public sector ..."*
>
> President Bush[1]

WHAT IS TOTAL QUALITY MANAGEMENT

There are many working definitions of TQM, all very similar. The Federal Quality Institute defines TQM as, "... a strategic, integrated management system for achieving customer satisfaction.

It involves all managers and employees and uses quantitative methods to improve continuously an organization's processes."[2]

The Army's version of TQM is Total Army Quality (TAQ). "TAQ is a proactive, action-oriented management philosophy designed to produce continuous improvement and achieve high-quality performance in day-to-day operations and help shape the future."[3]

The Conference Board, founded in 1916, whose purpose is to improve the business enterprise system and to enhance the contribution of business to society, took a global look at TQM. It defines TQM as, " ... conformance to agreed upon customer requirements, whether that customer is inside or outside of the company. The performance standard used states that there should be no deviation from agreed requirements. The process should be led by senior management, not only by a quality department. The system should be oriented toward prevention rather than detection. The measurement used is the cost of quality."[4]

There are many other definitions out there, but most are variations of those listed above. They agree that a shift of an organization to TQM requires a cultural change. To implement TQM, organizations must adopt the philosophy.[5] TQM is a system approach to continuous quality improvement. It is customer focused, uses various management tools to measure success, emphasizes teamwork to establish ownership of actions, and has the commitment and backing

of leadership.

THEORISTS - GURUS - MENTORS OF TQM

> *"Never tell people how to do things. Tell them what to do and they will surprise you with their ingenuity."*
>
> George S. Patton, Jr.[6]

There is no single adjective that adequately describes the giants who have led the world in implementing this philosophy. Although there are other theorists, this review of literature about TQM focuses on the true leaders of TQM -- Dr. W. Edwards Deming, Philip B. Crosby and Dr. Joseph M. Juran.

Dr. W. Edwards Deming

Deming was influential in shaping what the United States has come to think of as the Japanese management method. He originally went to Japan in 1947. At the request of General Douglas MacArthur, he helped conduct a census and assessed what it would take to rebuild the war torn country. Today Japan names its highest quality award after Dr. Deming. He has been called by many the founder of the

third wave of the industrial revolution.

Deming has capsulized his philosophy into 14 points. These 14 points lay out a framework for organizations to build around when establishing and maintaining a quality organization that can achieve continuous improvement (see appendix A.)[7]

His 14 points are based on six principles that are the foundation of his philosophy. The principles stress the importance of the customer, good training and top management involvement (see appendix B.)[8]

Philip B. Crosby

Philip Crosby is best known for developing the concept of zero defects. He defines quality as conformance to requirements. The measure of the cost of non-conformance is the measure of quality. His standard for measurement is zero defects. To Crosby, quality management is preventing defects. Crosby also has a vaccine to prescribe to business in trouble. Its three ingredients are determination, education and implementation. Like Deming, Crosby has 14 steps to quality (see appendix C.)[9]

Crosby's fourteen points are built from four absolutes of quality management that are the guts of his philosophy: #1 -- Quality is conformance to requirements. #2 -- The system of quality is

prevention. #3 -- The performance standard is zero defects. #4 -- The measurement of quality is the price of nonconformance.

He has written these because it is hard for many to comprehend the philosophy. No one is against quality but few have it.[10]

Joseph M. Juran

Juran moved quality from the technical aspects of quality control to advocating how to manage for quality. He identified problems associated with the human element that is in organizations, communication and coordination of functions.[11]

The heart of Juran's philosophy revolves around what he calls the "Trilogy." It is basically three interrelated processes leaders can use to manage quality: quality planning, quality control and quality improvement.[12]

Quality Planning -- The process of establishing quality goals and developing the means for meeting those goals. It involves the steps of:

-Identifying customers and determining their needs.
-Develop products to meet these needs.
-Develop processes to produce the products.[13]

Quality Control -- This is a managerial process carried out by the operating force. They evaluate control, compare actual performance to goals and take action on the differences.[14]

Quality Improvement -- This process takes aim at out performing the past. Juran calls it a breakthrough. To achieve a breakthrough you must:

- -Establish teams and identify projects for improvement.
- -Provide resources, motivation and training.
- -Prove effectiveness or the improvements.
- -Establish controls to hold the gains.[15]

Throughout Juran's works there is a heavy emphasis on leadership responsibility in TQM, much more so than other theorists.

There are several other important theorists in the TQM Field such as Armand V. Feigenbaum who add significance to the TQM philosophy. These three individuals, though, provide all that is necessary for a strategic planner to implement a TQM effort in an organization and be successful.

WHY TEACH TQM TO SENIOR SERVICE COLLEGE STUDENTS?

> *"To win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the supreme excellence."*
>
> Sun Tzu[16]

The one of the basic questions addressed by this research is if the time is well spent teaching TQM in Depart of Defense SSCs? The school year is short and there just isn't enough time to teach everything.

One good reason to teach TQM is a mandate from the Secretary of Defense to implement a quality philosophy throughout the agency.[17] This, though is not the best reason to implement TQM or grounds for spending valuable curriculum time in SSCs teaching TQM. Research has shown that TQM is a philosophy proven to deliver a quality product at the least cost. In DOD and the services, the product can be a staff paper, an acquisition contract or a campaign battle plan for one of the war fighting Commander In Chiefs (CINCs). As DOD implements change in the downsizing process, TQM applications across the spectrum of DOD would be an excellent way to use the skills of the people of DOD to make it a more efficient

organization. They are the ones who will have to execute the downsizing. As they build down, why not lead them in a process to build in quality?

There is not a TQM theorist around who does not emphasis the importance of leadership involvement and commitment in a TQM effort. As DOD assigns military leaders around the military services, they need to know what TQM is and how to make it work. Civilian leaders in DOD are the continuity glue that holds DOD together as the military leaders move around. They also need to know what TQM is and how to make it work. They will be the ones to sustain the efforts and make quality a continuous improvement process.

The future leaders of DOD and other federal agencies are the students of SSCs. The agencies select only the best to attend. Only those with a bright future in the DOD and their agencies attend the schools. What better place to teach TQM to our future leaders than at our Nation's highest level of military education, the military services' war colleges or the two joint schools at the National Defense University (NDU), Industrial College of the Armed Forces (ICAF) and National War College (NWC)?

Department of Defense SSCs are in the business of preparing selected commissioned officers and federal employees for senior leadership, staff and command positions. Each school provides a

broad understanding of national security policy and strategy. The three service schools then concentrate on their type of warfare and what role it plays in the national strategy. ICAF concentrates on the resource component of national power and the NWC on joint/interagency perspectives.

The level of instruction on TQM at the different schools varies. ICAF, The Naval War College and the Army War College have an elective. The Air War College has the most advanced instruction with several hours in its core program devoted to TQM. They also are also expanding the program for next year's class.[18]

WHAT SHOULD BE INCLUDED IN SSC CURRICULUM

> *"The purpose of executive education [in TQM] is to help senior people understand their role in causing problems and then causing improvement in the quality process."*
>
> Philip B. Crosby[19]

In the civilian education community there is a growing ground swell of education programs emphasizing TQM. The October 1992 issue of

Quality Progress contains a list of colleges and universities offering quality related courses and degrees. This year 160 universities and 60 community colleges responded to their survey. Courses offered by these educational institutions are in the areas of engineering technology, management, quality control, statistics and in other related areas. As an interesting side note, almost 70 percent of the schools also have implemented quality practices in the administration of their schools.[20]

What The Civilian Schools Teach About Quality

This research examines three schools that offer quality related advanced degrees: North Carolina State University, Fordham University and The University Of Chicago.

North Carolina State University (NC State)

NC State's Master Of Science In Management Degree program consists of a core curriculum in general management skills and applications plus a concentration of courses in a technical option.[21] TQM is a new technical option offered this year. In this option students study techniques for assuring quality in products, service and general business processes. They view quality from the perspectives of engineering, statistics and management. The following is a listing of their courses in the TQM technical option:

Total Quality Management Technical Option Course Requirements

Required Courses:

-Managing for Quality

-Long-range Planning in Business and Industry

Courses Emphasizing Engineering Quality Management:

-Quality Control

-Organization Planning and Control

-Reliability Engineering

-Quality Engineering

-Project Work

-Textile Quality Control

Courses Emphasizing Management And Statistics In TQM:

-Research Methods In Marketing

-Statistical Methods For Quality and Productivity Improvement

-Statistical Quality Control

-Special Problems[22]

Fordham University

Fordham has a quality oriented degree program in its Graduate School of Business plus a unique program that studies the management principles of Dr. W. Edward Deming. "The management systems curriculum prepares managers to lead the organizational change and to make the strategic decisions necessary for business to survive in today's globally competitive world."[23] The school blends courses from three specializations areas with the following core requirements:

Core Requirements:

Organizational Design and Management
Design and Management of Operations
Business Policy

The three management Systems Specialization areas are:

Quality and Systems Management:

-Process Control
-Leadership and Change
-Integrated Process Management Study
-Plus two other advanced level management systems courses

Quality and Systems Design:

-Process Control

-Statistical Reasoning

-Optimal Design

-Plus two other advanced level management systems courses

Competitive Strategy:

-Industrial Analysis and Strategic Planning

-Strategy Implementation

-Strategy Management of Innovations and Technology

-Plus two other advanced level management systems courses[24]

Fordham's Deming Scholars MBA Program is an 18 month full time courses of study. It integrates Deming's management teachings with Fordham's MBA curriculum combining classroom sessions with on-site internships. The internships provide students with an opportunity to apply the theories they learned in the classroom sessions.[25]

The University Of Chicago

The University of Chicago's Graduate School of Business includes quality management as a formal discipline. The University devotes substantial academic resources toward teaching and research in TQM. "The quality management tools and concepts focus squarely on preparing the student to face the practical problems of running an organization. Even if the acronym "TQM" should pass out of

currency, quality management ideas would endure as the most significant strategic approach to effective management."[26] A concentration in quality management consists of any four of the following courses:

Courses For A Concentration In Quality Management

- -Quality and Productivity Improvement
- -Best Practices
- -Applied Production and Operations Management
- -Quality and Productivity Improvement for Health Care and Public Policy
- -Total Quality: A Two-Course Sequence Based on the Malcolm Baldrige National Quality Award Criteria
- -Strategic Role of Quality
- -Management for Continuous Improvement
- -Topics in Quality Management Research
- -Laboratory to Achieve Organizational Excellence - Improvement of Teaching, Curriculum, and Research[27]

Additional Support For Training in Total Quality Management

Other research and working education programs help identify topics

necessary for proper training in TQM. The San Diego based Naval Recruit Training Command incorporates basic TQM concepts, basic methods and techniques and team effectiveness methods in its TQM training package.[28] A paper written to provide broad guidelines for planning and coordinating a TQM education and training program for DOD acquisition work force listed the following as requirements in an effective training program:

- quality awareness and TQM philosophy
- skills and statistical methods to analyze process
- group development skills
- changing organizational culture and how to overcome barriers to implementing TQM[29]

A third study whose purpose was to design an education and training strategy for TQM in DOD listed the same topics as this paper cites.[30]

Finally, the Federal Quality Institute recommends the following for top Management:

- Awareness Training

  General understanding of basic concepts & principles

  Introduction to basic problem solving tools

-Participation in a sampling of courses and conferences

Seminars by leading theorists (Deming, Juran & Crosby)

Other awareness courses

-Site Visits

Gain a better understanding of how TQM works

See ways to handle issues as they emerge

-Reading books and articles

Independent reading to expand knowledge of TQM[31]

Recommended Topics For SSC

The stated purposes of the separate SSCs are not to graduate students with a masters degree specialized in TQM. The schools must integrate TQM into the different programs. The schools' faculties should design programs that provide all some basic knowledge of TQM. Additionally, there should be flexibility for electives in different aspects of TQM. The following is a possible mix of courses:

Core Program

Basic Theory -- This block would offer all a solid background of the theory behind TQM. The theory could be the basics as laid out in the introduction portion of this paper that discusses the main theorist. By understanding what the major theorists believe

and teach, students will understand the basics of TQM. Senior leaders need to learn the broader ideas so they know when and where to apply the principles.

Implementation -- Until TQM is a widely accepted concept within DOD, how to implement a TQM effort in an organization will be a very important skill. Key elements in an implementation effort to be taught should include:

TQM Infrastructure	Use of Improvement Teams
Leader's Role	Training
Development of a Plan	Commitment to the Effort

The schools also should provide a comprehensive list of resources to the students. This list should include more on the basics and a "how to implement" cookbook.

Sustainment -- Senior leaders also will need to know how to sustain TQM efforts. This will be useful in sustaining their own implementation efforts and in sustaining on-going efforts in organizations as the mobile DOD work force moves around.

Electives

Process Management and Problem solving techniques -- Senior leaders will need some basic knowledge in how to identify, analyze

and solve problems and measure progress. An elective that teaches these basic management techniques will be useful to all students. Among others the techniques should include:

Flow Charting	Pareto Charting	Brainstorming
Histogram	Nominal Group Technique	Pie Charting
Cause & Effect Diagram	Scatter Diagram	Matrix diagram
Force Field Analysis	Prioritization Matrices	Fishbone Diagram

Group Interpersonal Dynamics -- Senior leaders will not be successful without some knowledge of how to motivate a group of people who are trying to work together to achieve a common goal. Most attendees of the SSCs already have some capabilities in this area. Most attendees, though, need and want additional help. Instruction in tools such as the Klien Advanced Team Decision Making Model would be very valuable to senior leaders.[32]

Any student can use these two electives, not just those interested in TQM. Case studies also can add a DOD flavor.

This recommended instruction in TQM is in line with the civilian graduate degree programs listed earlier. Additionally, it is supported by other established training programs and similar research. Faculty can tailor TQM instruction to fit within SSCs curriculum, yet not dominate the courses that are much shorter than civilian graduate degree completion programs.

PROBLEMS WITH TQM

"Countless minor incidents - the kind you can never foresee - combine to lower the general level of performance, so that one always falls short of the intended goal."

Carl Von Clausewitz[33]

The great military strategist, Clausewitz, was talking about what causes war plans to go wrong -- the unforeseen that plans did not address. Generally, the same principle applies to failed TQM efforts.

A recent study shows that of 107 private sector organizations surveyed, 54 percent have tried TQM. Of these, only 36 percent report any success.[34] What causes TQM efforts to sour?

Varied Causes of Failure

A major unforeseen reason for failure of TQM efforts has been the results of the failing economy. Layoffs have hurt labor and management relations causing mistrust and lack of support for TQM

efforts. Other failures are the direct result of management cutting the TQM staffs. Another dollar related problem has been the inability to show direct cost savings as a result of TQM.[35] Other causes of failures are the result of poor implementation and training. Too often management expects a faster payoff than TQM gives.[36] Also at times, management has inflated expectations. There are some complaints by workers of excessive paperwork associated with TQM.[37] Lack of understanding of employee roles and poor use of measurement and analysis tools are the cause of other failures.[38]

In some cases there are some regulator rules, and practices that hamper a successful implementation of TQM. One such area is in the DOD acquisition field. Emphasizing lowest bid, too much "how to" guidance and quality assurance based on inspection are three major problems.[39]

Major Cause of Failure

In each of the references above which cite problems with TQM, there was one reoccurring theme -- poor leadership - poor leadership in planning, implementation and execution.[40] [41] [42] [43] All are due to a lack of understanding by leadership about TQM. Lack of understanding can be addressed with proper training and education.

CONCLUSION

"Innovative management techniques, such as TQM, should be considered as one of many approaches to making government more efficient and effective."

President Bill Clinton[44]

The guidance is clear from the top. The President and Secretary of Defense have committed themselves to TQM. It is time senior leaders in DOD and other government agencies begin to get the proper education in TQM. From studying the philosophy, we know TQM is a leader driven effort. Leaders cannot lead without knowing what to do.

This research has shown that the basis is currently present in all but one of the SSCs for the schools to include TQM in their curriculum. Additionally, there is an abundance of research spelling out what the curricula should include. Properly educated leaders can avoid the problems that lead to failure. The problems are well documented in this and other research.

Teaching TQM in the SSCs to our Nation's future leaders is not a

new idea. The 1989 study mentioned previously that looked at education and training in DOD recommended SSCs teach TQM.[45] It is time to take action.

RECOMMENDATIONS

> *"It doesn't take a hero to order men into battle. It takes a hero to be one of those men who goes into battle."*
>
> General H. Norman Schwarzkopf[46]

All government agencies who play a part in sending our nation's most valuable resource into harm's way have a responsibility to do everything possible to insure the safety of these men and women and to insure victory. Our fighting forces should go into battle with nothing less than the best equipment and weapons employed in executing battle plans that will win the wars. Quality in recruiting, acquisition, planning, execution and leadership is necessary to achieve this goal.

Not only do the top leaders need training in TQM, but the entire work force needs training to make TQM work. All levels of

education in the government should include TQM. Training and education are usually level specific -- employee or soldier, first line supervisor or non - commissioned officer, lower management or junior officer, middle management or field grade officer, senior management or general. A specific level of supervision can receive the appropriate level of training. On the job training or just-in-time training identified as needed by supervisors can enhance the process.

Additionally, the education institutions, SSC or others, need to "walk their talk." Leadership should apply TQM principles to the administration of the institutions. What better way to show skeptics that TQM works.

APPENDIX A

DEMING'S 14 POINTS

1. Create constancy of purpose toward improvement of a product or service. The aim is to become competitive, stay in business and provide jobs. To do this a company must clarify its purpose and maintain its focus in good and bad times.

2. Adopt a new philosophy. Saying quality counts is not enough. Trying to implement new techniques and methods without accepting the new management philosophy will backfire.

3. Stop relying on mass inspection. You eliminate it by building quality into the product in the first place. Another way to think about it is you cannot inspect quality into a product. Quality has to be there by inspection time.

4. Stop the practice of awarding business on the basis of price. Instead develop long-term relationships of loyalty and trust with your suppliers.

5. Constantly improve quality and production. This in turn will lead to a constant reduction of costs. You can improve quality of products and service through innovation and improvement of existing products, services and processes. Use tools such as control

charts, flow charts and experimental design to understand the process and identify areas for improvements.

6. A sound continuing training program is essential. That is training for all -- employees and managers.

7. Institute good leadership. Transform the leaders from being checkers and enforcers to being coaches.

8. Drive out fear; it causes untold waste and loss. Fear can be a motivator but it does not motivate innovation or constructive action.

9. Break down barriers between departments so there is a truly integrated team effort.

10. Eliminate slogans, exhortations and targets for the work force asking for zero defects and new levels of productivity. A worker can deliver more lower quality but not better quality if the system is broke.

11. Eliminate work standards (quotas) and management by objectives and substitute leadership. Quality can suffer as workers rush to meet quotas or management pushes to reach a numerical goal

12. Remove barriers that rob the hourly worker of their right to

pride in workmanship and the manager and engineer of their right to pride of workmanship -- abolish the annual review or merit rating. Change the responsibility from achieving mere numbers to achieving quality.

13. Institute a vigorous program of self-improvement. This point differs from point six on training. It deals with pr[illegible]ding resources so people may develop as individuals for themselves not for the company.

14. Create a structure and an atmosphere that will push every day on accomplishing the 13 points above. The transformation is everybody's job.[47]

APPENDIX B

DEMING'S SIX PRINCIPLES

1. The customer defines quality. Quality comes from improving the process by anticipating customers' future needs.

2. You must understand and reduce variations in processes.

3. Top management must commit to quality improvement.

4. All members of an organization, to include outside suppliers, must be a part of change and improvement.

5. The prerequisite for sound analysis is a good education and training program.

6. Individual performance ranking schemes can impede initiative.[48]

APPENDIX C

CROSBY'S 14 STEPS TO QUALITY

1. Management commitment to quality.

2. Set up quality improvement teams.

3. Measure to tell how well you are doing.

4. Determine the cost of quality.

5. Raise the awareness of quality in all.

6. Correct problems when identified.

7. Plan for zero defects.

8. Educate employees on the program.

9. Have a zero defects day where management makes its commitment to quality.

10. Set goals.

11. Error-cause removal. Ask people to state the problems so

something can be done.

12. Recognize people for quality work.

13. Have a quality council to bring quality professionals together.

14. Do it all over again so that quality improvement is a way of life.[49]

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